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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,701	08/31/2001	Jun Kawaguchi	M 6712 HST/NI PCT/US	1007

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EXAMINER

ZHENG, LOIS L

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/914,701

Applicant(s)

KAWAGUCHI ET AL.

Examiner

Lois Zheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 6-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 6-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 27 July 2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 27 July 2004 has been entered.

Status of Claims

1. Claims 1 and 6-23 remain for examination
2. The indicated allowability of claims 11, 18 and 21 is withdrawn in view of the newly discovered reference(s) to WO 98/09006(WO '006) in view of Yamamoto et al. US 4,517,030(Yamamoto) and Bittner et al. US 5,152,849(Bittner). Rejections based on the newly cited reference(s) follow.

Status of Previous Rejections

3. The rejections of claims 1, 6-10, 12-17, 19-20 and 22-23 under 35 U.S.C 103(a) based on WO 91/19836 A1 or Kanamaru et al. are withdrawn in view of Applicant's amendment filed on 27 July 2004.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 6-10, 12-17, 19-20 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO '006.

WO '006 discloses a method for electrochemical phosphating of metal surfaces using a phosphating solution comprising:

- 0.5 – 100 g/l Ca^{2+} ;
- 0.5 – 100 g/l Zn^{2+} ;
- 5 – 100 g/l PO_4^{2+} ;
- 0 – 100 g/l NO_3^{2+} ;
- 0 – 100 g/l ClO_3^{2+} ; and
- 0 – 100 g/l F^- or Cl^-

and the temperature of the solution is 0-95°C, and the current density is between 0.1 and 250 mA/cm² (i.e. 0.01 – 25 A/dm²) (abstract, page 2, lines 6-22).

With respect to claims 1, 6, 8, 12, 14, 16, 19 and 22-23 of the instant invention, the disclosed ranges of Zn^{2+} , PO_4^{2+} , NO_3^{2+} and $\text{Zn}^{2+}/\text{PO}_4^{2+}$ ratio of WO '006 encompass the claimed ranges of zinc, phosphoric acid, nitric acid and $\{\text{Zn}\}/\{\text{H}_3\text{PO}_4\}$ ratio of the instant invention as recited in claims 1, 6, 12, 14 and 22-23.

With respect to claims 7, 13 and 15 of the instant invention, the disclosed ranges of ClO_3^{2+} ; and F^-/Cl^- of WO '006 encompass the claimed ranges of fluorine compounds and/or chloric acid and/or perchloric acid of the instant invention as recited in claims 7, 13 and 15.

With respect to claims 9-10, 17 and 20 of the instant invention, the disclosed operation temperature range of WO '006 encompasses the claimed temperature range and the disclosed current density range of WO '006 overlaps the claimed current density range, as recited in claims 9-10, 17 and 20 of the instant invention.

Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed phosphating composition ranges and operating condition ranges from the disclosed ranges of WO '006 would have been obvious to one skilled in the art since WO '006 teaches the same utilities in its' disclosed phosphating solution composition and operating condition ranges.

6. Claims 11, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO '006 in view of Yamamoto and Bittner.

The teachings of WO '006 are discussed in paragraph 5 above.

However, WO '006 fails to teach the claimed weakly basic aqueous colloidal solution that contains titanium oxide, titanium hydroxide and zinc phosphate.

Yamamoto teaches a process for activating steel surfaces prior to phosphating treatment by contacting the steel substrate with an aqueous activating solution (title, abstract). The activating solution of Yamamoto comprises titanium hydroxide and

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titanium oxide (col. 3 lines 13-18) in order to accelerate subsequent phosphate coating and refine phosphating coating crystals (col. 1 lines 8-15).

Bittner teaches a phosphating process during which zinc phosphate is used as an activating agent to prepare the substrate to form a firmly adhering and finely crystalline phosphate layer during the succeeding phosphating process (col. 3 lines 22-32).

Therefore, it would have been obvious to one of ordinary skill in the art to have added zinc phosphate of Bittner to the activation solution of Yamamoto in order to improve the adherence of the subsequent phosphating coating as taught by Bittner.

Furthermore, it would have been obvious to one of ordinary skill in the art to have incorporated the activating step of Yamamoto in view of Bittner into the phosphating process of WO '006 in order to realize the benefits of accelerated and firmly adhering phosphate coating with refined coating crystals as taught by Yamamoto in view of Bittner.

7. Claims 1, 6, 8, 12, 14, 16, 19 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda US 5,645,706(Matsuda).

Matsuda discloses a phosphate chemical electrolytic treatment of metal substrate and at the same time, removing the sludge(title, abstract). The treatment solution of Matsuda comprises 4 – 150 g/l of phosphate ion, 3 – 150 g/l of nitrate ion, 1.5 – 40 g/l of metal ions such as zinc(col. 7, lines 37-45, col. 14, lines 6-10). The disclosed zinc ion, phosphate ion, nitrate ion and the ratio of zinc/phosphate ions overlap the claimed ranges of zinc, phosphoric acid, nitric acid and $\{Zn\}/\{H_3PO_4\}$ ratio of the instant invention

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as recited in claims 1, 6, 12, 14 and 22-23. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed zinc, phosphoric acid, nitric acid and $\{Zn\}/\{H_3PO_4\}$ ratio ranges from the disclosed ranges of Mastuda would have been obvious to one skilled in the art since Mastuda teaches the same utilities in its' disclosed zinc ion, phosphate ion, nitrate ion, and ranges.

8. Claims 11, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda in view of Yamamoto and Bittner.

The teachings of Matsuda are discussed in paragraph 7 above.

However, Matsuda fails to teach the claimed weakly basic aqueous colloidal solution that contains titanium oxide, titanium hydroxide and zinc phosphate.

The teachings of Yamamoto and Bittner are discussed in paragraph 6 above.

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the activating step of Yamamoto in view of Bittner into the phosphating process of Matsuda for the same reasons as discussed in paragraph 6 above.

Response to Arguments

9. Applicant's arguments with respect to claims 1, 6, 8-10, 12, 14, 16-17, 20 and 22-23 have been considered but are moot in view of the new ground(s) of rejection.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Speckmann et al. US 5,503,733 disclose a process for electrolytically phosphating galvanized steel surfaces with a coating solution comprising 0.1 – 5 g/l

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Zn^{2+} , 5 – 50 g/l PO_4^{2+} , 0.1 – 50 g/l NO_3^{2+} . The coating process takes place at 10-80°C and with a current density of 0.01-100 mA/cm².

Saito et al. US 4,861,441 disclose a coating composition used in the method of making a black surface treated steel sheet. The coating composition comprises 10 – 100 g/l Zn^{2+} .

Ataya et al. JP 62-050496 disclose a electrolytic treatment of metallic substrate using a coating solution comprising 0.1 – 50 g/l of zinc, 1.5 – 100 g/l of orthophosphoric acid and nitric acid. The coating process takes place at about 90°C and with a current density of 0-50 A/dm².

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LLZ

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